Blast Resistance Buildings For Oil and Gas Field Training

Description

Course Description

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- The design management procedure for industrial projects will be clarified. The entire load that affect the structure building in oil and gas facilities will be illustrated.
- This course will focus about the phenomena of blast load, the dynamic material strength, in addition to the concrete and steel structure design to resist the ballast load. The dynamic analysis technique will be presented. In addition the new materials as CFRP to be used to protect the structure from the blast load. The course content relies heavily on the recently revised ASCE publication, Design of Blast Resistant-Buildings in Petrochemical Facilities.
- The concrete and steel structure design principal will be illustrated to select the suitable structure system. The materials response and characteristics will be discussed in the course.
- The CFRP design principal will be discussed to resist the building against the blast load.
- The integrity management system procedure will be illustrated taking into consideration the major factors in design, construction and repair to maintain the concrete structure economically in all its lifetime

Course Objective

The participants will be provided with detailed course material and will be familiarized with suitable way in concrete design in industrial structure. The engineer will be familiar with any problem and its solution in the concrete structure in the petrochemical industry and its causes of failure.

- Familiarize participants with the issues, standards, and procedures used to design structures that resist blast loads.
- Provide participants with in-depth knowledge of the principles of dynamic analysis.
- Develop basic competence in the use of available engineering methods for calculating blast loads and
- dynamic structural response.
- Provide an overview of the design approach used for typical construction materials (steel, concrete, masonry),

- Systems (shear walls and frames), non-structural components (doors and windows).

Who Should attend?

This course is designed for construction civil and structural and project engineers.

Course Outline

Day One:

- Design Management process
- Control the design of the industrial projects
- Define the load on the industrial structure
- BS and ACI code in design of concrete

Day Two:

- Reason for blast load
- Blast load effect and calculation
- Pressure Vs time Characteristic
- Load combination with blast load
- Joints ductility / response to blast loads
- Special detailing of Blast Resistant structures
- Fragment impact , positive/negative phase duration.
- Behavior of structural members / damages forecast .
- Progressive collapse

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Day Three:

- Dynamic material strength
- Materials and structure element type.
- Dynamic materials
- Deformation limits
- Dynamic increase factor
- Elastic , Elasto-Plastic & Plastic deformation due to blast loads
- Inspection and maintenance plan
- Evaluation of existing structure

Day Four:

- Dynamic analysis method
- Design procedure
- Typical detail for the connection
- Upgrade existing building
- Workshop for case study concrete structure
- Workshop for steel structure
- Workshop for masonry structure
- Construction precaution to achieve design requirement

Day Five:

- The inspection and monitoring procedure to control the construction
- CFRP principal and design
- Doors and walls resistance specs to resist blast load
- Advanced materials for protection
- Precaution in control room design

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